GEOGRAPHIC SCHOOL BULLETINS

Published Weekly by

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NOTE TO TEACHERS: This is the first of the GEOGRAPHIC SCHOOL BULLETINS for the school year 1941-42. No BULLETINS were issued during the summer months. See important announcements following Bulletins No. 1 and 2.

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IN FASHIONS OF VIKING FORBEARS, ICELANDERS FACE MODERN WAR

Although Iceland has not entered a foreign war since the Vikings came, war has now entered Iceland. British, Canadian, and United States forces are stationed on the formerly Danish outpost in the North Atlantic. For special occasions Iceland women appear in their national dress, which has changed little since the medieval days of its Viking origin—quaint tasseled caps, snug velvet bodices and flowing sleeves, and richly figured skirts, all ornamented with metallic embroidery and medallions (Bulletin No. 5).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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General Headquarters, Washington, D. C.

Soviet Union, Giant Among Nations

IN CARRYING the war into Soviet Russia, the Germans have challenged the world's largest nation.

The Soviet Union, when the invasion began, had an area between two and a half and three times the size of continental United States. (That figure includes the Russian-held territory in Poland, Finland, Bessarabia, and the three Baltic nations of Latvia, Lithuania, and Estonia.) The population then under Soviet rule amounted to more than 193,000,000 people.

To world-traveler Humboldt, Russia seemed a land "as big as the face of the moon." The sun takes 11 hours to cross it; the traveler takes ten days to go by rail from Moscow to Vladivostok.

175 Different Peoples under Soviet Rule

Stretching from the Baltic to the Pacific, from the Arctic Ocean to the Black Sea, the Soviet Union counts among its inhabitants more than 175 different racial groups, speaking almost as many languages and dialects.

It is master, in Europe and Asia, of an enormous treasure chest of natural resources, many of which have hardly been tapped. Soviet authorities estimate their coal deposits at more than one and a half trillion tons, or 21 per cent of the world's known supplies. Iron ore reserves are figured at more than 10½ billion tons; oil at 6⅓ billion tons. The latter vital material of war and industry is recovered not only from the well-known fields in the Caucasus near Baku, but also from Central Asia, from the Volga River region, and on the rich Pacific island of Sakhalin, owned jointly with Japan. Soviet Russia ranks second only to the United States in production of petroleum.

Manganese, used to harden steel and therefore essential in making munitions and other war supplies, is another important product of the U.S.S.R. In one recent year, its output totaled nearly three million tons, part of which was sold to the United States. Gold, platinum, nickel, copper, zinc, lead, bauxite for aluminum, and salt are also found in large quantities in Soviet lands.

Bulk of Population Faces Invader

In addition to underground wealth, the Union has the world's largest timber reserves. Innumerable fur-bearing animals range its northern woods. Its extensive fisheries include the world-famous sturgeon industry, source of caviar. It has potential water power resources estimated at 65 million horsepower, and an industrial plant which turns out mass production articles from buttons to boilers, pastries to tanks, glasses to airplanes.

Of special importance in war times is the generous food supply obtained from the vast stretches of fertile Russian soil. Soviet Russia leads the world in wheat acreage. Other diet items in Russia's larder are rich crops of rye, barley, oats, corn,

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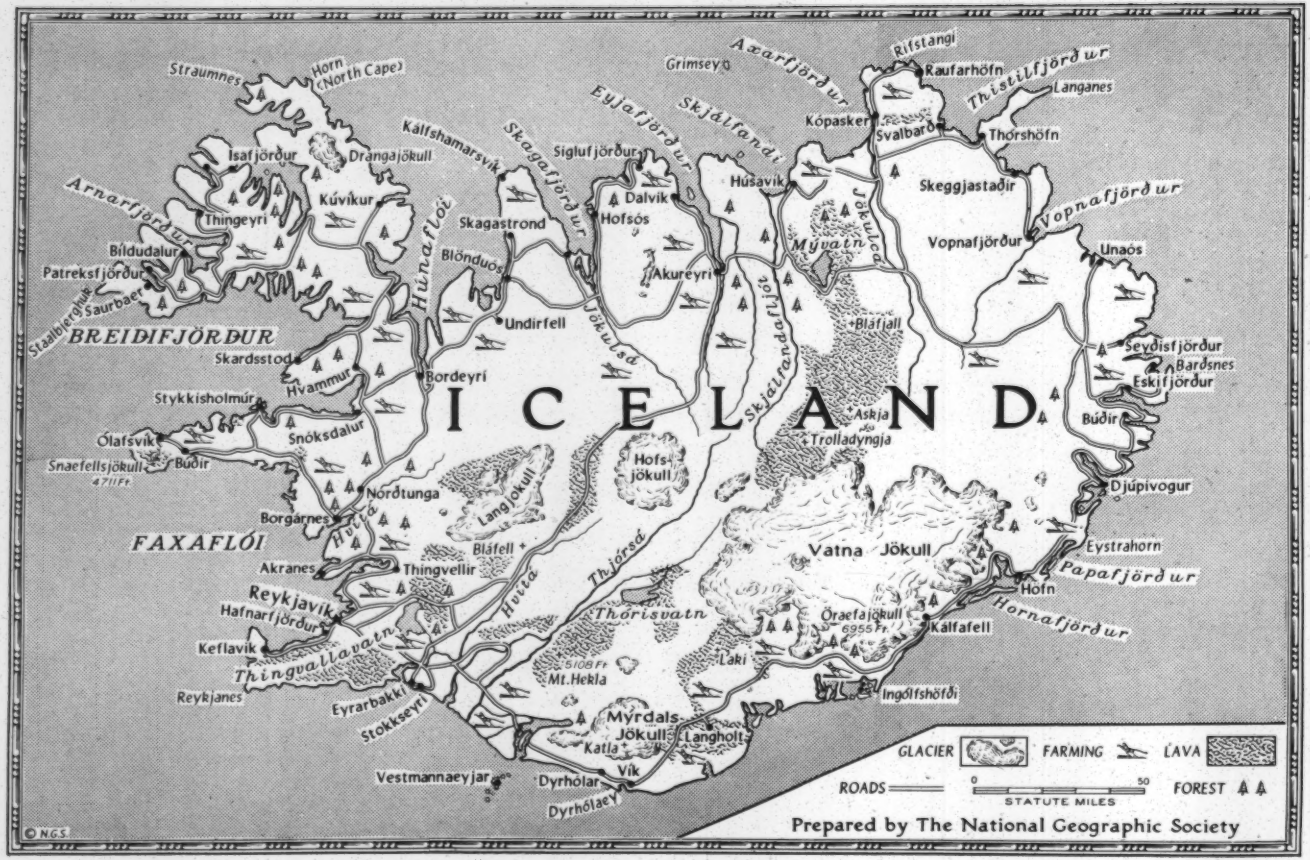
ICELAND
Straumnes
Horn (North Cape)
Grimsey
Axarfjörður
Rifstangi
Raufarhöfn
Thistilfjörður
Langanes
Eyjafjörður
Skjálfandi
Kópasker
Svalbarð
Thórshöfn
Kálfshamarsvík
Skagafjörður
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Drangajökull
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Arnarfjörður
Thingeyri
Kúvíkur
Hunafloi
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Blönduos
Akureyri
Unaós
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Stokkseyri
Myrdals-Jökull
Katla
Langholt
Vestmannaeyjar
Dyrhólar
Vik
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GLACIER
FARMING
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0
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What Is Your State's New Size?

THE United States was measured last year for a new suit of geographic statistics, and the Census Bureau this summer outfitted every State with a fresh, snugly tailored set of accurate dimensions. Previously the nation had been wearing the sixty-year-old measurements made in 1880.

Every State area has changed. Five States have grown or diminished so much that their relative ranking in size has had to be shifted.

Four States Gain over 1,000 Square Miles Each

Many of these changes in size resulted from the new way of measuring coastal waters. Some States claimed that their areas included all coastal water extending for three leagues, six leagues, even twenty leagues out to sea. The new measurements eliminate these watery "front yards" and confine State areas to coastal limits.

Other changes are due to court decisions on boundaries, more accurate surveys, improved maps, and shifting rivers (illustration, next page). For example, large-scale county maps show that certain inland water areas are smaller than old maps had indicated, and the surrounding land area is greater. This correction alone added 3,352 miles to the land area of the United States.

The nation's size is now officially 3,022,387 square miles.

The new measurements made the greatest addition to Texas and California, already the nation's largest States, with increased areas of 267,339 square miles (up 1,246) and 158,693 square miles (up 1,151) respectively. The two other States making large gains were Maine, picking up 1,145 square miles for an area of 33,215, and Mississippi, jumping 1,058 to an area of 47,716 square miles.

Twenty-Five Gain Area, Twenty-Four Lose

New Mexico led the 24 States on the losing end, with a decrease of 992 square miles (to 121,666). Minnesota's size was also revised downward, by 849 (to 84,068); Florida's by 599 (to 58,560); Idaho's by 546 (to 83,557); and Wisconsin's by 541 (to 56,154).

Arizona is still the fifth largest State, in spite of losing 230 square miles (now 113,909); Nevada the sixth, though 19 square miles smaller (now 110,540); and Colorado seventh, with a gain of 309 square miles (to 104,247).

Nebraska moved up from fifteenth to fourteenth in rank, displacing South Dakota, though their present areas of 77,237 square miles and 77,047 square miles respectively are both reduced. North Dakota also showed a loss, 129 square miles, resulting in an area of 70,665.

Revised areas for the other States, in total square miles, are as follows:

Alabama	51,609	Maryland	10,577	Oregon	96,981
Arkansas	53,102	Massachusetts	8,257	Pennsylvania	45,333
Connecticut	5,009	Michigan	58,216	Rhode Island	1,214
Delaware	2,057	Missouri	69,674	South Carolina	31,055
Georgia	58,876	Montana	147,138	Tennessee	42,246
Illinois	56,400	New Hampshire	9,304	Utah	84,916
Indiana	36,291	New Jersey	7,836	Vermont	9,609
Iowa	56,280	New York	49,576	Virginia	40,815
Kansas	82,276	North Carolina	52,712	Washington	68,192
Kentucky	40,395	Ohio	41,222	West Virginia	24,181
Louisana	48,523	Oklahoma	69,919	Wyoming	97,914

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sugar beets; fruits and vegetables from southern regions; rice from Central Asia.

More than three-fourths of the Russian people, and by far the major portion of the country's fertile farm lands and industrial regions, lie in European Russia, facing the German onslaught.

The outstanding trait of European Russia is its physical uniformity. It is virtually one vast rolling plain, similar in structure to the open reaches of central Poland, which offered so little natural obstruction to the German panzer divisions in the first blitzkrieg of the war.

Other physical factors, however, appear to give Russia an advantage in the struggle. Writing in 1936, a German officer pointed out that "Russia is the only European State which is unlikely to be attacked effectively from the air, because of the enormous extent of her territory. The vastness of the country, the comparatively low density of its population, and the fact that its war industries and governmental and administrative centers are far away from the frontiers afford it a certain natural protection."

Note: For additional information and photographs of Russia and its people, see: "Surveying Through Khoresm," *National Geographic Magazine*, June, 1932; and "Russia of the Hour," November, 1926.

See also the GEOGRAPHIC SCHOOL BULLETINS for further information. These include: "1940 Toppled Kings and Governments in World-Wide Upsets," January 20, 1941; "Danube Delta Tense as Russo-German Pressure Point," January 12, 1941; "New Boundaries for a Shorn Finland," April 1, 1940; "Finland's Karelian Isthmus Is Europe's Hottest Battleground," January 29, 1940; "Soviet Union Appears in Political Patchwork of the Baltic," October 16, 1939; and "Forts for Vladivostok Crown Siberia-Manchukuo Border Hills," April 17, 1939.

For detailed study of Russia, see the Society's 1940 Map of Europe and the Near East, obtainable from the Washington, D. C., headquarters, at 16th and M Streets.

Bulletin No. 1, October 6, 1941.

Photograph by Irvine C. Gardner

A SCIENTIST USUALLY ATTRACTS CROWDS WITH HIS INSTRUMENTS

When a total eclipse of the sun in 1936 brought scientists from around the world to Ak Bulak, in Soviet Siberia, the Russian "man in the street" showed a lively interest in all the apparatus of astronomical research. Dr. Irvine Gardner, leader of the National Geographic Society-National Bureau of Standards Eclipse Expedition, took this picture of a young Russian astronomer, in black coat and cap in the background, demonstrating his equipment for photographing the eclipse. The apparatus was automatically kept trained on the moving sun by a clockwork driving mechanism (behind the two girls, foreground). The popularity in Russia of machine and scientific apparatus is one result of the expansion of the country's industry.

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Tehran Sees Two Shahs, Two Armies, in One Week

FOLLOWING closely on the entrance of British and Russian forces into Iran, the nation once known as Persia saw an upheaval that toppled the famous Peacock Throne.

In 1921 a young Persian cavalry officer at the head of 2,500 troops captured the country's capital, Tehran. In 1926, he crowned himself Shah. But in September, 1941, as the British and Russian forces closed in, Riza Shah Pahlevi fled from the capital and left the jeweled Peacock Throne to his son.

Tehran has been for twenty years the center and the symbol of far-reaching changes that have turned remnants of ancient Persia into modern, oil-wealthy Iran. Automobiles and filling stations are common in the capital of Omar Khayyam's homeland. But a typical Persian garden, with fountains and fruit trees, spreads before Tehran's City Hall (illustration, next page).

Mountains Give Glimpse of Summer Snow

Situated 70 miles south of the Caspian Sea, Tehran stands at the foot of the mighty Elburz Mountains. Overlooking it from a distance is perpetually snow-capped Demavend, highest peak in Iran (18,600 feet).

The summers are extremely hot, but on the whole the climate is similar to that of Arizona.

Although Tehran bears some traces of the glories of ancient Persia, it is essentially a present-day community in an oriental setting. As the city outgrew its original boundaries, old buildings were pulled down along with the battlemented mud walls. Fine old palaces, decorated with blue and green mosaic tiles, were turned into hospitals or military schools. Colorful but stuffy bazaars, where delicate gold and silver filigree work was sold, were razed.

Now wide streets, lined with slender poplar trees, are filled with autos, trucks, and buses. Camel trains, remnants of the caravans of former days, ordinarily do not enter the city but stop at its edge.

New buildings, constructed by order of Shah Pahlevi, are European in architecture, but are decorated with bull and lion heads and other carvings copied from the ruined palaces at Persepolis, capital of the ancient Persian Empire under Darius. One-story adobe apartment houses, built around courtyards, have become popular living quarters.

Diamond Sunshine on Historic Throne

Actually a new alabaster throne has replaced the traditional Peacock Throne, which has been pushed to the back of Gulistan Palace's throne room. Across the back of that well-preserved dais two carved peacocks spread glittering tails, inlaid with rubies, emeralds, and pearls. A sun of diamonds shines at the top. Monarchs climbed two steps to reach the dais, then sat cross-legged in oriental fashion. The new throne is an elaborate chair.

Development of Tehran as the center of government has increased the population to more than 300,000. Women have given up the veil.

Factories have been established there, turning out shoes, cigarettes, cement, and textiles.

Note: Tehran of today and yesterday is shown in "Old and New in Persia," *National Geographic Magazine*, September, 1939. See also: "Modern Persia and Its Capital," April, 1921.

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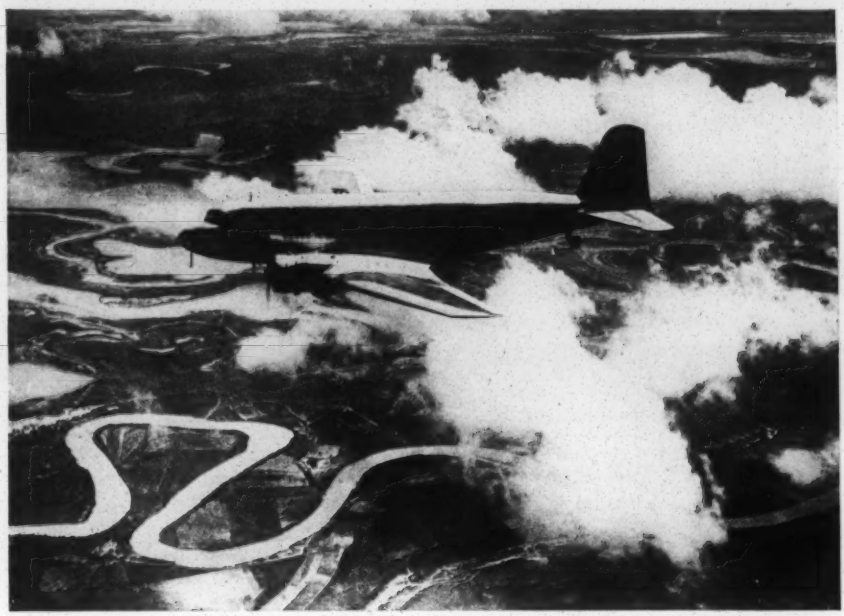
Virginia made the greatest drop in rank. The new measurements show that State in 35th place, now surpassed in size by both Tennessee and Ohio.

The District of Columbia sustained the loss of one square mile in area, now measuring 69 square miles (including 8 of water area).

Note: Successive changes in the boundaries of States may be followed in "How the United States Grew," *National Geographic Magazine*, May, 1933.

Corrected boundaries appear on the map of the United States published by the National Geographic Society in December, 1940, in accordance with the 1940 census. This may be obtained, printed on paper or on linen, from the Washington, D. C., headquarters.

Bulletin No. 2, October 6, 1941.



Photograph from A. Rogers Studio

THOUGH TEXAS REMAINS THE BIGGEST STATE, THE RIO GRANDE KEEPS IT FROM STAYING THE SAME SIZE

One reason for the increase of 1,246 square miles shown in the area of Texas by the last Census measurements is the Rio Grande idly looping through its delta. At any time a short cut of the shifting river may subtract from or add to Texas the land within a loop (such as those in the lower left-hand corner of the picture). This phase of geography-in-the-making can best be seen from one of the many transport planes that regularly fly across the delta on the route between Brownsville, Texas, and Mexico City.

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Strategic Materials: No. 8, Silk Now Goes to War

THE thread that life hangs by in modern warfare is often a silk thread. The surgeon closes gaping wounds with silk sutures; the aviator leaping from a burning plane entrusts his life to a silk parachute. In view of its vital importance in the nation's defense effort, the United States has set aside all raw silk stocks in the country for military needs, converting a peacetime luxury into a war necessity.

Silk goes up in smoke every time the Army or Navy fires a big gun. The powder charges that propel heavy shells go to war outfitted in silk sacks, and no entirely safe substitute is known. When the powder explodes, the silk bag burns in a flash, leaving no smoldering particles in the gun that might threaten to set off the next bag of powder accidentally. The silk not only must burn quickly, but must be strong enough not to spill the heavy, hard-edged "grains" of powder; therefore the powder bags are made of noils, the rough waste silk, rather than the more delicate threads, and look like silk burlap. They may be as large as a small sack of flour.

90 Per Cent of Silk Used for Hose

Every ship in the U. S. Navy is manned by silk-wearing sailors, whose neckerchiefs and cap ribbons are an accepted part of the naval uniform. Pilots are provided with scarfs made of parachute silk, to be used as mufflers. The Army man also has use for silk, in the bits of ribbon to which medals are attached.

The schoolboy who scorns adornment still needs silk, for dental floss, fishing lines and flies, and the stitching on baseball mitts. Men take silk for granted in their hat linings, neckties, and suit linings.

Workaday silk supplies housekeepers with blanket bindings and window drapes, gives typewriter ribbons and umbrellas to the working girl.

But the chief civilian rôle of silk today is dress, the same it had in the 3rd century, when the Emperor of the Roman Empire refused to buy his empress a silk robe because it was too expensive. About 90 per cent of the silk imported into the United States, before the present emergency, used to become silk stockings.

More than 1,000 mills spin the silkworm's product into hosiery, forming an extensive industry with its center in Pennsylvania. The process of converting raw silk into thread, corresponding to the spinning of cotton, is known as "throwing," named from an old Anglo-Saxon word meaning to twist.

For all uses, from cannon to fishing rods, the United States annually requires 55 million pounds, more than half the cocoons of all the silkworms in the world.

The center of the world silk industry is a moth without the power to fly or eat, the *Bombyx mori*. Hatching from an egg no larger than a poppy seed, the

Strategic materials, according to the official definition of the Army and Navy Munitions Board, are "those essential to national defense, for the supply of which, in war, dependence must be placed in whole, or in substantial part, on sources outside the continental limits of the United States; and for which strict conservation and distribution control measures will be necessary."

The GEOGRAPHIC SCHOOL BULLETINS have been presenting a series of articles on these materials, their use, their peculiar qualities, and the countries from which they are obtained. The following have already been described:

Chromium (No. 7)	Mercury (No. 5)	Quinine(No. 2)
Manila Fiber (No. 4)	Mica (No. 6)	Tungsten (No. 3)
	Nickel (No. 1)	

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Photograph by Maynard Owen Williams

ANCIENT TEHRAN HAS BEEN A CAPITAL ONLY TWO DECADES LONGER THAN WASHINGTON, D. C.

This 1,000-year-old city did not become the Persian capital until 1785. The facade of the extensive new City Hall, with flower boxes in its many arches, follows the style set by Persian architects 2,500 years ago, but the interior is modern. Women veiled in black (sidewalk, center) are rarely seen. Now the city uses European-type buses, gardening tools, clocks, and uniforms. Sepah Square (center) has a magnificent view of the snow-capped Elburz Mountains (right background). Sepah Avenue leads to the Anglo-Iranian Oil Company's offices.

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Iceland, Isle of Frost and Fire, Joins Defense Line-Up

(This is the tenth of a series on the new U. S. defense bases.)

LITTLE land of frost and fire, of contrast and contradictions; birthplace of the "grandmother of parliaments," home of peace for a thousand years—that is Iceland, where United States forces have set up a defense base on the dividing line between hemispheres.

The little island that has had no foreign war throughout its history is now a vital station on the convoy routes of the U. S. Navy, in the deadly "Battle of the Atlantic."

Free Heat by Mother Nature Belies Arctic Location

The United States detachments now on duty in Iceland are not having as cold an assignment as stay-at-homes may think. In spite of its misleading name and its location just below the Arctic Circle, the island enjoys winter temperatures higher than those in many areas of the Temperate Zone. The Gulf Stream swings north and eastward past Iceland to warm the air and keep the harbors open throughout the year. Furthermore, hot springs underlying the island's volcanic rocks keep some of the inland lakes open for seaplanes at all seasons of the year, and supply abundant free hot water to public swimming pools and laundries.

July, with long days and little night, is the warmest month for Icelanders; then the temperature ranges around 50 degrees. Even in January the thermometer in the coastal towns—where most of the Icelanders live—seldom goes more than a few degrees below zero.

By direct ship from New York it is 2,600 miles to Iceland, which lies 750 miles northeast of Greenland's southernmost cape. Bergen, Norway, is 680 miles to the east, while the northern tip of Scotland is less than 500 miles southeast.

Volcanoes and Glaciers Blight One-Fourth of Surface

The island, a rough oval about the size of Kentucky, has been compared to the surface of the moon. It is pitted with thousands of volcanic craters, of which Mt. Hekla is the best known. Ancient lava fields are bleak and barren. Together lava beds and glaciers cover nearly a quarter of the surface (see map, inside cover).

This nation of less than 120,000 persons is proud of its long record of democratic government. Settled in the 9th century by Irish monks and Vikings, it established as early as 930 an elected assembly called the Althing. This grandmother of parliaments has continued to function for more than a thousand years.

Since 1918 the country has been technically independent, although it remained united with Denmark to the extent that the Danish king was also king of Iceland. In May, 1941, however, the Icelandic Althing elected a regent to serve in place of the king, for one year.

In spite of meager soil and limited resources, the hard-working, thrifty Icelanders have made considerable progress. Roads, telegraph and telephone lines run from Reykjavik, the capital, to farming regions along the coastal lowlands. Electricity has been widely installed, from power generated in the numerous rapid streams. Since coal has to be imported at high cost, many Reykjavik buildings are heated with hot water piped from geysers. It is also piped into greenhouses, where tomatoes and other vegetables are raised.

Hay, potatoes, and turnips are about the only crops that can be grown in the generally poor soil without this special hot water treatment. Grass growing on

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silkworm fattens on mulberry leaves until it reaches a length of more than three inches. When mature it weaves its chrysalis of fragile silk threads, winding the filaments about itself in a figure-8 pattern with some 300,000 weaving motions of its head. The cocoon is dropped into boiling water to kill the worm, then unwound into as much as 1,200 yards of silk.

Japan is the stronghold of the silkworm, producing the major portion annually of the total world output, some 100 million pounds of silk. In more than two million homes in the Japanese Empire, a cocoonery is almost as much a part of the house as the nursery. Three "crops" of cocoons a year can be obtained with care.

Silk was China's secret for centuries, until Japan and India learned that the precious thread was not, as Chinese propagandists implied, sheared from a special kind of sheep. In the 6th century two monks bootlegged sample silkworm eggs into Europe as a fitting gift for Emperor Justinian. Now, while China ranks a distant second to Japan as a source of silk, Italy, Syria, Bulgaria, India, Afghanistan, and numerous other countries also produce the strategic filament.

Note: Studies of silk worms and silk mills appear in "How Half the World Works," *National Geographic Magazine*, April, 1932; and "Strange Habits of Familiar Moths and Butterflies," July, 1927.

Articles on silk appearing in the GEOGRAPHIC SCHOOL BULLETINS include: "A Silk Thread Links American Worker to Oriental Worm," February 21, 1938; and "Unwinding Thread from Cocoons," October 25, 1937. Silk cocoons are illustrated in the BULLETINS for November 4, 1940, and December 4, 1939.

Bulletin No. 4, October 6, 1941.

Photograph by Maynard Owen Williams

SKEINS OF SILK HAVE COST THEIR WEIGHT IN GOLD

Filaments unraveled from the silkworm's cocoon are reeled and twisted into heavy lustrous skeins, for convenient handling. This silk merchant in an Afghanistan bazaar has a stock of skeins in many different colors, the sort of wares that the Orient once sold to Europe for their weight in gold. But for shipment to the United States, skeins are packed together into tight bundles called "books." About thirty of them make a bale.

the coastal slopes feeds enough sheep—nearly five times more numerous than the people—to add plentiful mutton to their diet. Wood is rare and precious, because the few trees on the island are dwarfed.

Like the people of many other northern regions, the Icelanders have turned to fishing for a livelihood. Iceland's fisheries produce cod and herring valued at $5,000,000 a year. Since the present war began, the dried fish have found a ready market in England at high prices. In recent years large quantities of cod liver oil have been shipped to the United States.

All Icelanders can read and write, for school is compulsory. There is no army and no navy. In Reykjavik, where a third of the country's people live, the University is one of the most imposing buildings. The city itself, however, is not a picture town, for lack of lumber has forced the inhabitants to build their Danish-type houses partly of sheet iron, painted brown.

Note: More material on Iceland is available in "Ancient Iceland, New Pawn of War," *National Geographic Magazine*, July, 1941 (article accompanied by map). See also "Island of the Sagas" and "Walking Tour Across Iceland," April, 1928. See also the GEOGRAPHIC SCHOOL BULLETINS for "Old-New Iceland and Hands Across the Sea," April 8, 1940.

Map reference: The Society's Map of the Atlantic Ocean, issued with the September, 1941, number of the *National Geographic Magazine*.

Bulletin No. 5, October 6, 1941.

© Douglas W. Stevens

ICELAND WOMEN HAVE THE LAST WORD—AND WORK—ON THE MEN'S FISH CATCH

Women in berets, sweaters, and overalls take charge of the catch brought in from Iceland's codfish banks. Split open, cleaned, and flattened out, the fish are stacked in piles like cordwood, so that their own weight forces out the brine. Then they are spread to dry in the sun on level stretches of lava beds. Women collect the drying fish into stacks to be covered every night, and spread them out again each morning. Since Iceland's market in Spain has been cut off by war, many of the fish are shipped to England.

U. S. DEFENSE BASES SERIES

This is the tenth of a series of bulletins on U. S. defense bases. Many of the other bulletins of the series are available at the Washington, D. C. headquarters of the National Geographic Society. Teachers whose subscriptions began after this series started, or who wish to replace copies missing from their files, may obtain the bulletins free of charge as long as the supply lasts.